Ant’s Life Studio Manual

English Translation by /u/kakubinn

Ant's Life Studio

User's Guide / Instruction Manual

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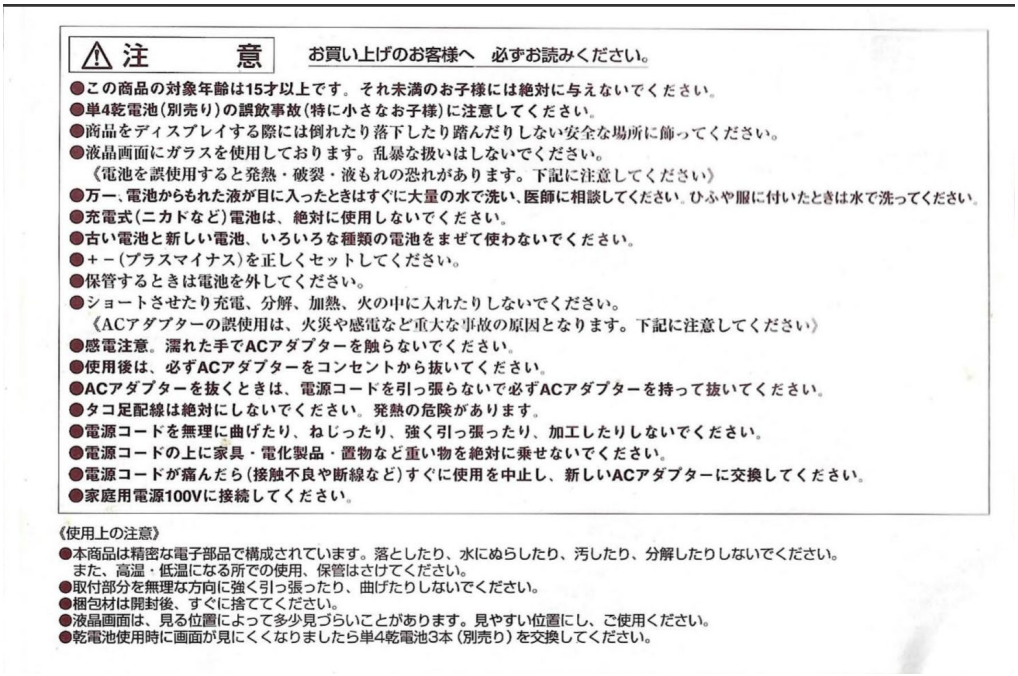

⚠注　　意　お買い上げのお客様へ　必ずお読みください。

●この商品の対象年齢は15才以上です。それ未満のお子様には絶対に与えないでください。
●単4乾電池(別売り)の誤飲事故(特に小さなお子様)に注意してください。
●商品をディスプレイする際には倒れたり落下したり踏んだりしない安全な場所に飾ってください。
●液晶画面にガラスを使用しております。乱暴な扱いはしないでください。
《電池を誤使用すると発熱・破裂・液もれの恐れがあります。下記に注意してください》
●万一、電池からもれた液が目に入ったときはすぐに大量の水で洗い、医師に相談してください。ひふや服に付いたときは水で洗ってください。
●充電式(ニカドなど)電池は、絶対に使用しないでください。
●古い電池と新しい電池、いろいろな種類の電池をまぜて使わないでください。
●＋－(プラスマイナス)を正しくセットしてください。
●保管するときは電池を外してください。
●ショートさせたり充電、分解、加熱、火の中に入れたりしないでください。
《ACアダプターの誤使用は、火災や感電など重大な事故の原因となります。下記に注意してください》
●感電注意。濡れた手でACアダプターを触らないでください。
●使用後は、必ずACアダプターをコンセントから抜いてください。
●ACアダプターを抜くときは、電源コードを引っ張らないで必ずACアダプターを持って抜いてください。
●タコ足配線は絶対にしないでください。発熱の危険があります。
●電源コードを無理に曲げたり、ねじったり、強く引っ張ったり、加工したりしないでください。
●電源コードの上に家具・電化製品・置物など重い物を絶対に乗せないでください。
●電源コードが痛んだら(接触不良や断線など)すぐに使用を中止し、新しいACアダプターに交換してください。
●家庭用電源100Vに接続してください。

《使用上の注意》
●本商品は精密な電子部品で構成されています。落としたり、水にぬらしたり、汚したり、分解したりしないでください。
また、高温・低温になる所での使用、保管はさけてください。
●取付部分を無理な方向に強く引っ張ったり、曲げたりしないでください。
●梱包材は開封後、すぐに捨ててください。
●液晶画面は、見る位置によって多少見づらいことがあります。見やすい位置にし、ご使用ください。
●乾電池使用時に画面が見にくくなりましたら単4乾電池3本(別売り)を交換してください。

△ Caution: To the customer, please be sure to read this.

● The target age for this product is 15 years and older. Never give it to children under this age.

● Be careful of accidental ingestion of AAA batteries (sold separately), especially by small children.

● When displaying the product, please place it in a safe location where it will not fall, drop, or be stepped on.

● Glass is used for the LCD screen. Do not handle it roughly.

<Improper use of batteries may result in heat generation, bursting, or leakage. Please note the following:>

● If liquid leaking from the battery gets into your eyes, immediately wash with a large amount of water and consult a doctor. If it gets on your skin or clothes, wash with water.

● Never use rechargeable (Ni-Cd, etc.) batteries.

● Do not mix old and new batteries, or different types of batteries.

● Set the + and - (plus and minus) correctly.

● Remove the batteries when storing.

● Do not short-circuit, charge, disassemble, heat, or put into fire.

<Improper use of the AC adapter may cause serious accidents such as fire or electric shock. Please note the following:>

● Caution: Electric shock. Do not touch the AC adapter with wet hands.

● After use, be sure to unplug the AC adapter from the outlet.

● When unplugging the AC adapter, always hold the adapter itself, not the power cord.

●Never plug too many cords into a single outlet (octopus wiring). There is a risk of heat generation.

● Do not forcibly bend, twist, pull hard, or modify the power cord.

● Never place heavy objects such as furniture, electrical appliances, or ornaments on the power cord.

● If the power cord is damaged (poor contact, broken wire, etc.), stop using it immediately and replace it with a new AC adapter.

● Connect to a 100V household power supply.

<Precautions for Use>

● This product is composed of precise electronic parts. Do not drop it, wet it, dirty it, or disassemble it. Also, avoid using or storing it in places that become high or low in temperature.

● Do not pull the attachment parts strongly in an unnatural direction or bend them.

● Please discard the packaging material immediately after opening.

● The LCD screen may be slightly difficult to see depending on the viewing angle. Please use it in a position where it is easy to see.

● When using dry cell batteries, if the screen becomes difficult to see, please replace the 3 AAA dry cell batteries (sold separately).

What is Ant's Life Studio?

A digital interior observation toy for adults that simulates the mysterious ecology of ants, which closely resembles a microcosm of human society. The ants work hard digging holes, carrying food, fighting off enemies, and caring for the queen ant, eggs, and larvae. Please give them a little help.

Equipped with a blue LED backlight. When it gets dark or you want to brighten it, press and hold the button to turn on the screen light.

Natural sounds such as insect noises and the rustling of the wind will play. Please create an environment as if you are in the natural world, such as the murmuring of a stream or the croaking of frogs.

Built-in vibration sensor. By tapping the main unit, you can surprise the ants or drive away enemies, creating a realistic feeling as if they are truly alive.

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Introduction

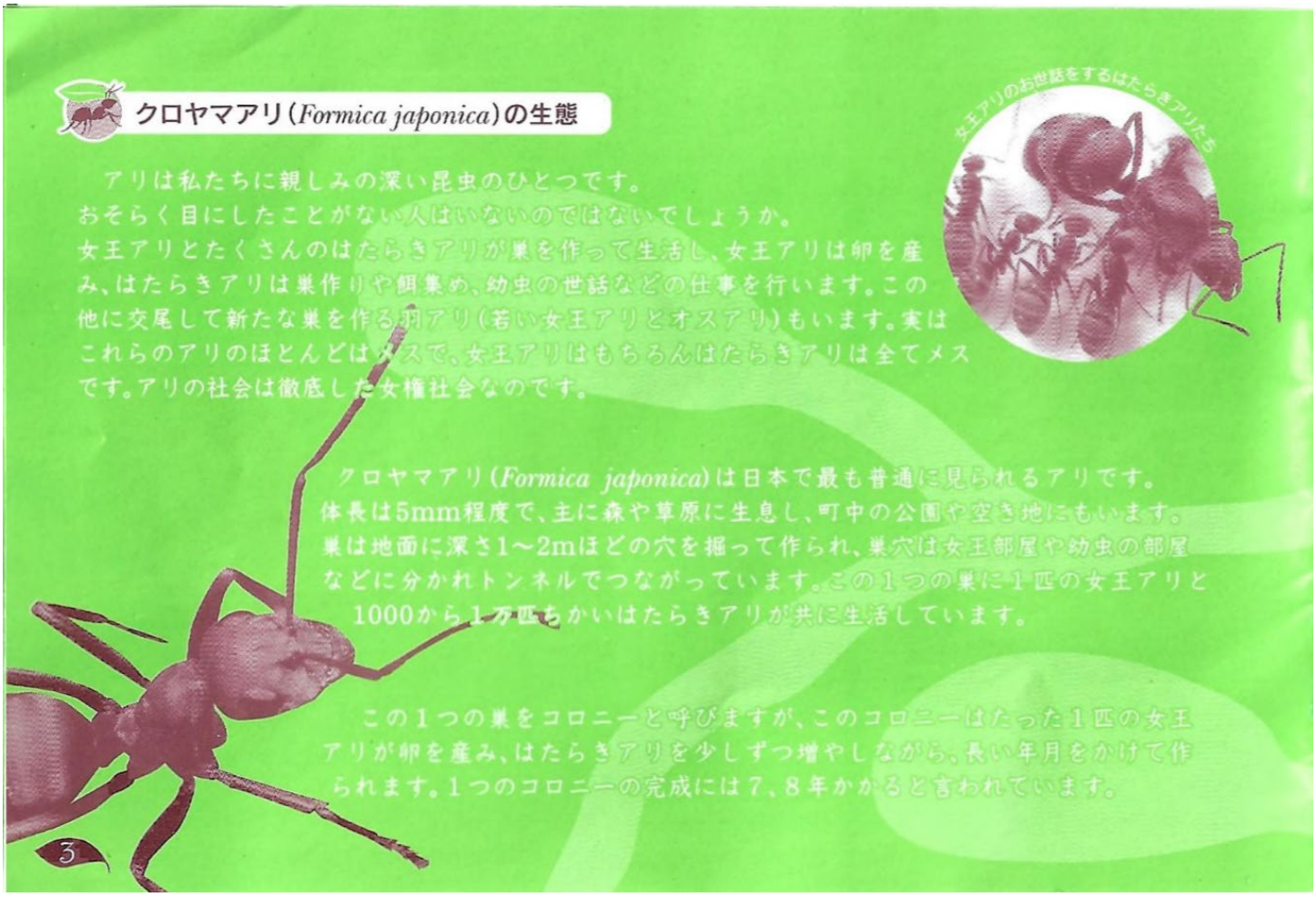
Formica japonica is an ant familiar to us. Many people have probably kept them in a tank filled with dirt. However, raising them to form a colony from a single queen ant requires a great deal of time and effort. Ant's Life Studio faithfully reproduces the colony formation process through a simulation program, realizing its breeding in a virtual form. Please cherish the sight of the Formica japonica colony reaching completion while enjoying a slow time together with the ants.

Kyosuke Okawara
Born in 1967, from Saitama Prefecture. Graduated from the doctoral program at the Graduate School of Environmental Earth Science, Hokkaido University. Assistant, Department of Biology, Graduate School of Natural Science, Kanazawa University. Representative of the Secretariat of the Myrmecological Society of Japan. Mainly researching the social evolution of ants and the symbiotic relationships between ants and plants.

About the Myrmecological Society of Japan

The Myrmecological Society of Japan is a research society that has been established for nearly 40 years, organized and operated by approximately 200 members interested in ants. Composed of a wide range of members from professional researchers to students and collectors, it has been involved in the editing and production of many books, programs, and databases related to ants. Once a year, it holds a research presentation meeting aimed at member interaction, information exchange, and the popularization of activities. In addition, it publishes the journal "Ari" (Ant) once a year, reporting on research results and academic information related to ants.

Anyone interested in ants can join this society. For details, please visit our website at http://www.japanese-ants.org/

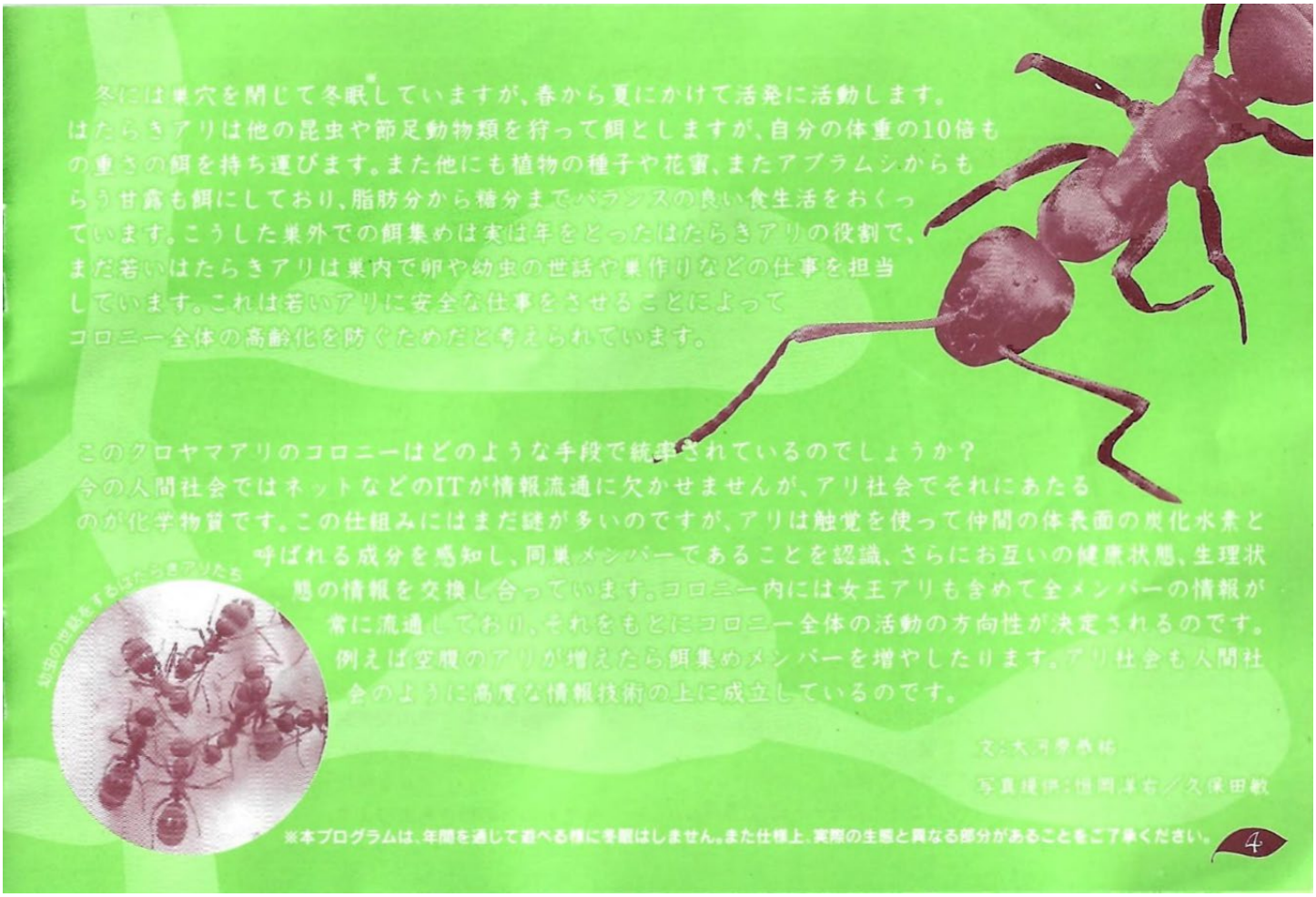


Ecology of Formica japonica

Ants are one of the insects most familiar to us. There is probably no one who has never seen one. A queen ant and many worker ants live together; the queen ant lays eggs, and the worker ants share tasks such as nest building, food gathering, and caring for the larvae. There are also winged ants (males and females) that mate and create new nests. In fact, most of these ants are female, and males only appear briefly during the mating season. Ant society is a thoroughly matriarchal society.

Formica japonica is the most commonly seen ant in Japan. Its body length is about 5mm, and it mainly lives in forests and grasslands, but can also be seen in city parks. Nests are made by digging holes about 1 to 2 meters deep in the ground, and inside the nest, they are divided into larva rooms, food rooms, etc., connected by tunnels. One queen ant and anywhere from 1,000 to tens of thousands of worker ants live in a single nest.

This single nest is called a colony, and this colony grows over many years as one winged female (queen ant) lays eggs and the number of worker ants gradually increases. It is said that it takes about several years for one colony to be completed. The queen ant lays her first eggs after shedding her wings.

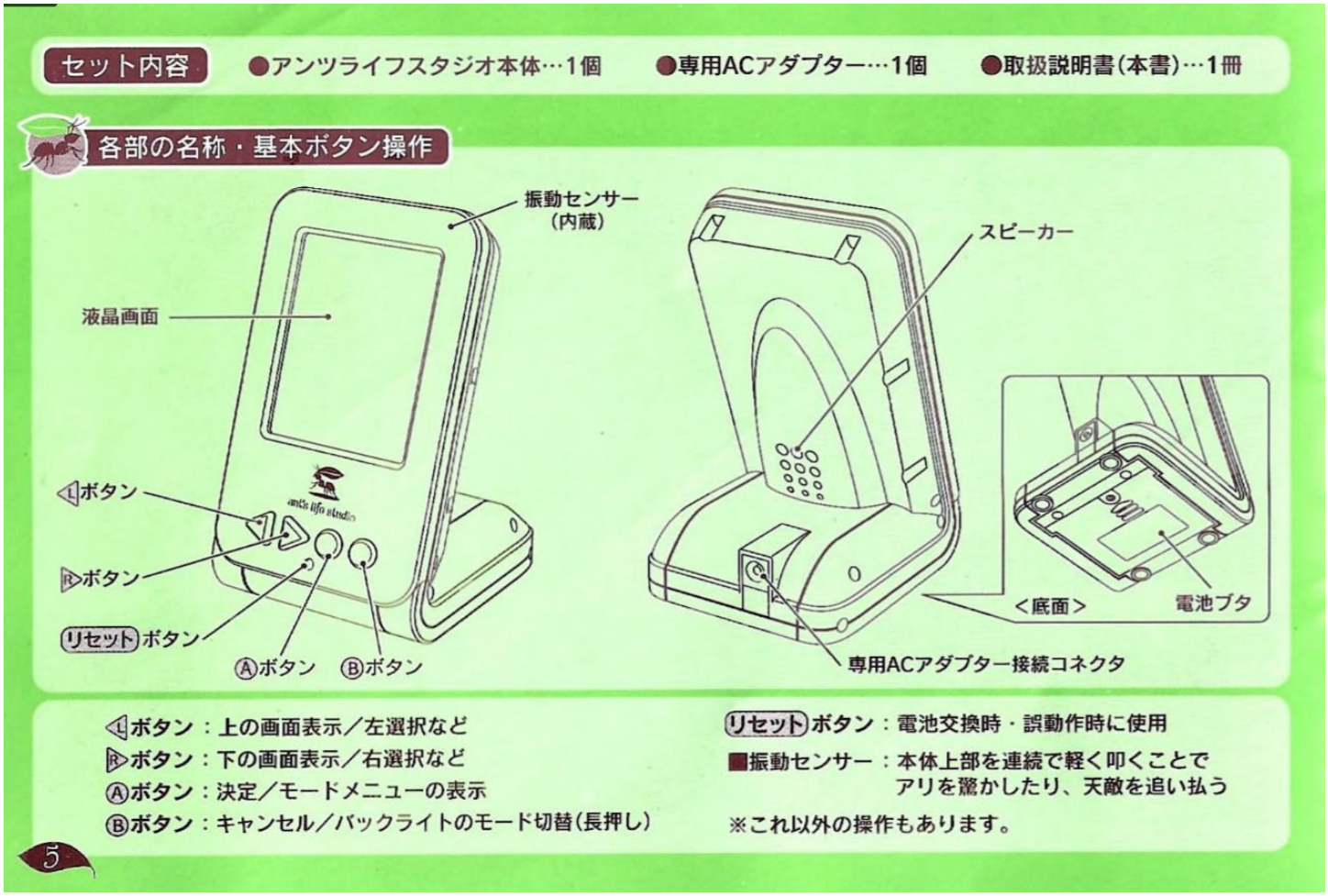


Ants are active from spring to autumn, but they are particularly active from spring to summer. Formica japonica hunts other insects and arthropods for food, and it can carry prey that is 10 times its own body weight. They also feed on plant seeds, nectar, and honeydew received from aphids, existing in a symbiotic relationship with plants and other insects. The food gathered in this way is carried into the nest and shared mouth-to-mouth from worker ants to larvae, and to other worker ants. The nutrients gathered this way are distributed to all members of the nest, nurturing the colony. This action is called "trophallaxis" (nutrient exchange) and is an important behavior that supports ant society.

By what means is this Formica japonica colony governed? In modern human society, IT such as the internet is essential for information distribution, but the equivalent in ant society is chemical substances. There are still many mysteries about this mechanism, but ants use their antennae to sense components called hydrocarbons on the body surface of their nestmates, recognizing that they are members of the same nest, and further exchanging information about each other's health and physiological states. Information on all members, including the queen ant, is constantly circulating within the colony, and based on this, the direction of the entire colony's activities is determined. For example, if the number of hungry ants increases, they will increase the number of members gathering food. Ant society is also built on advanced information technology just like human society.

Text: Kyosuke Okawara
Photos provided by: Takuya [Unreadable] / Satoshi Kubota

※This program does not hibernate so that it can be played with throughout the year. Also, please note that due to specifications, there are parts that differ from actual ecology.



Set Contents ● Ant's Life Studio main unit... 1 ● Dedicated AC adapter... 1 ● Instruction manual (this book)... 1

Names of Parts / Basic Button Operations

液晶画面 LCD screen
振動センサー（内蔵） Vibration sensor (built-in)
スピーカー Speaker
◀ボタン button
▶ボタン button
リセットボタン Reset button
Ⓐボタン Ⓐ button
Ⓑボタン Ⓑ button
＜底面＞ <Bottom>
電池ブタ Battery cover
専用ACアダプター接続コネクタ Dedicated AC adapter connection connector

◀ button: Top screen display / Left selection, etc.
▶ button: Bottom screen display / Right selection, etc.
Ⓐ button: Confirm / Display mode menu
Ⓑ button: Cancel / Backlight mode switch (long press)

Reset button: Use when replacing batteries or during malfunction
■ Vibration sensor: Tap the top of the main unit lightly and continuously to surprise the ants or drive away natural enemies
※There are other operations besides these.

How to attach the dedicated AC adapter

● Set the dedicated AC adapter to the main unit and a household outlet (100V) as shown in the figure.
Household outlet / Dedicated AC adapter / Ant's Life Studio main unit

● When using only the dedicated AC adapter, if the adapter is disconnected, it will be in a reset state and will start from the state of the save data remaining in the memory. (See page 14 "About data during breeding")

● To protect data, we recommend using dry batteries together even when using the dedicated AC adapter as the main power source.

● This product can only use the dedicated AC adapter for Ant's Life Studio. Other AC adapters cannot be used.

● When using the dedicated AC adapter the LCD backlight can be kept on constantly. If there is no operation for about 30 minutes, it switches to the clock screen.

How to insert batteries

※ Battery life (when using alkaline batteries): About 1 month under normal use (varies depending on usage conditions)

● While pressing the hole on the bottom of the main unit with a thin stick, remove the battery cover.

● Set 3 AAA batteries (sold separately) as shown in the figure so as not to mistake + and -.

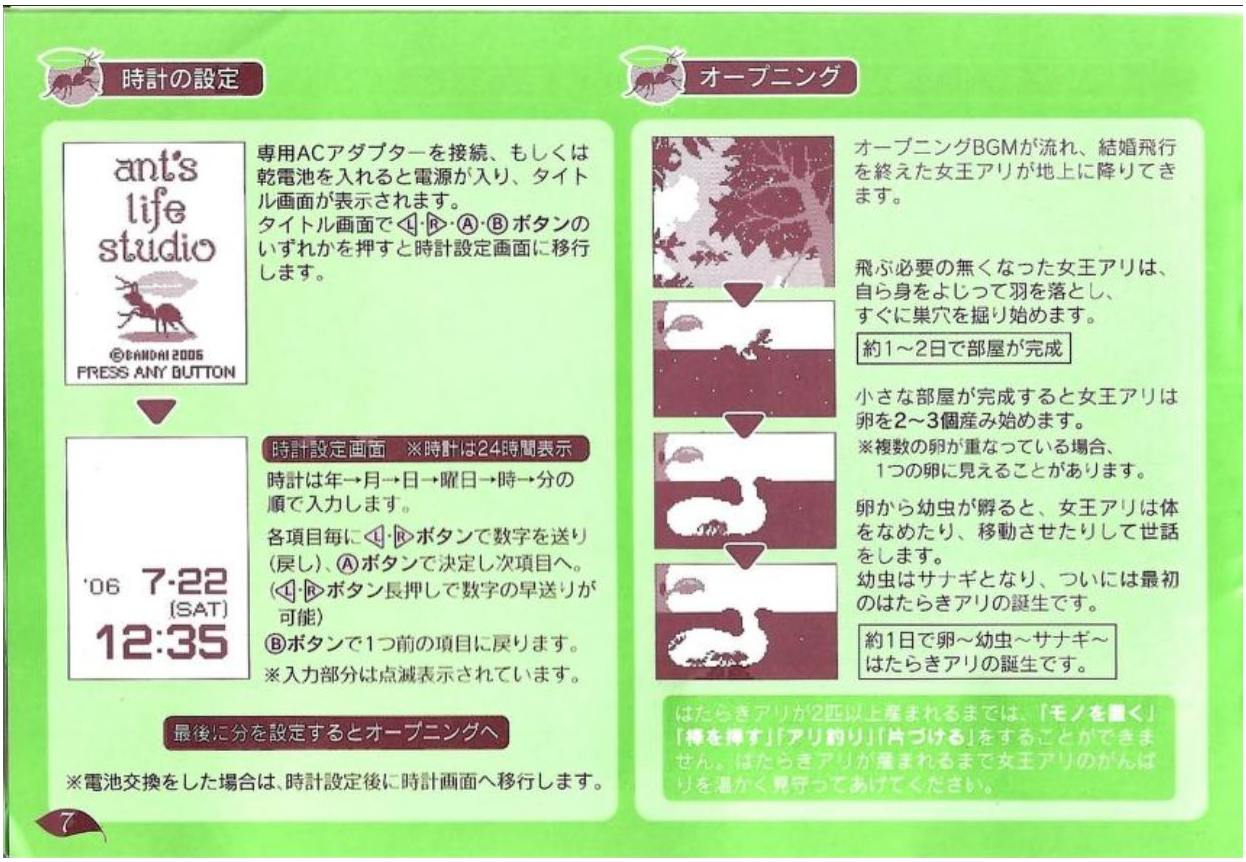
● Set the battery cover.

● Next, lightly press the reset button on the front of the main unit with a thin-tipped stick. Be sure to press the reset button after replacing the batteries.

※ Do not press the reset button strongly with a pointed stick (such as a toothpick) or the tip of a mechanical pencil. It may cause damage.

※ If the screen becomes faint or stops displaying, please replace the batteries.

When using dry cell batteries the LCD backlight turns on for about 10 seconds during operation. If there is no operation for about 15 minutes, it switches to the clock screen, and after another 15 minutes, the screen turns off and enters sleep mode. (The screen turns off, but the ants are working). Press any of the ◀, ▶, Ⓐ, or Ⓑ buttons to recover from sleep mode.



Clock Setting

When the dedicated AC adapter is connected or batteries are inserted, the power turns on and the title screen is displayed. Press any of the ◀, ▶, Ⓐ, or Ⓑ buttons on the title screen to move to the clock setting screen.

Clock Setting Screen ※The clock is in 24-hour format

The clock is set in the order of year -> month -> day -> day of the week -> hour -> minute.

For each item, use the ◀/▶ buttons to advance (return) the numbers, and press the Ⓐ button to confirm and move to the next item. (Press and hold the ◀/▶ buttons to fast-forward the numbers)

Use the Ⓑ button to return to the previous item.

※ The input section is displayed blinking. After setting the minutes at the end, it goes to the opening

※ If the batteries are replaced, it will move to the clock screen after the clock setting.

Opening

The opening BGM plays, and the queen ant, having finished her nuptial flight, descends to the ground. The queen ant, no longer needing to fly, twists her body to shed her wings and immediately begins digging a nest hole. Room is completed in about 1-2 days. When a small room is completed, the queen ant begins to lay 2-3 eggs.

※ If multiple eggs are overlapping, they may look like a single egg.

When larvae hatch from the eggs, the queen ant cares for them by licking their bodies and moving them. The larvae become pupae, and finally the first worker ants are born. It takes about 1 day for the birth of a worker ant from egg -> larva -> pupa. Until 2 or more worker ants are born, you cannot use "Place objects", "Insert a stick", "Ant hunting", or "Clear away". Please warmly watch over the queen ant's efforts until the worker ants are born.

How to view the screen

You can switch screens with the ◀/▶ buttons.

Clock Screen - The background changes depending on the season and time. Depending on the day, it may rain or snow.

Main Screen - Ant observation / Mode menu operation, etc.

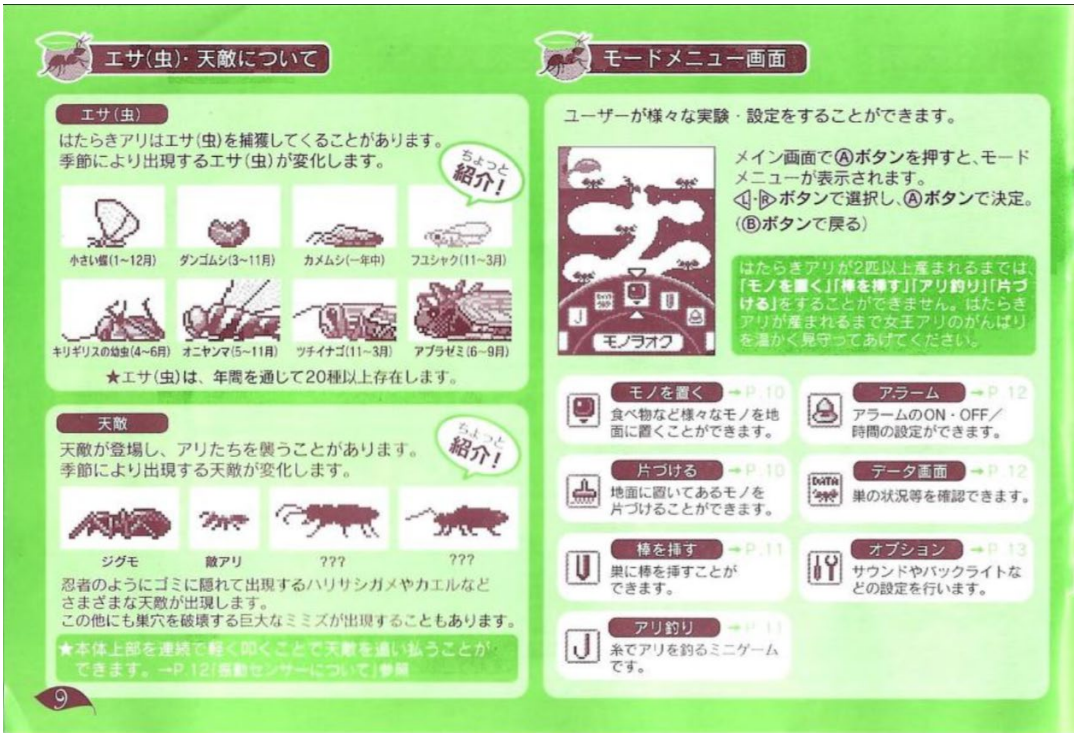
Lower Nest Screen - Ant observation *The nest spreads across 2 upper and lower screens.

Ant life and mysterious ecology

Worker ants are born after going through the stages of egg -> larva -> pupa. They expand the nest hole little by little every day. They take care of eggs, larvae, and pupae. They may capture food (insects). They share food. Natural enemies may appear and attack them. They have a lifespan. If you take care of them diligently, the queen ant will live longer. Worker ants have roles, divided into indoor work such as digging holes and caring for the queen ant, eggs, larvae, and pupae, and outdoor work mainly to catch food outside. They touch their antennae and greet each other. They temporarily store the food they caught. If a companion dies, they bury it in a grave. They throw away the garbage generated in the nest hole at the garbage dump. When they find food, they go to inform their companions. Ants from different nests become enemies. As the nest hole expands, the queen ant moves to a safer room deep underground and lays eggs there.

★The queen ant may lay winged ants. If you can raise them well... moving!?

卵(Egg)
幼虫 (Larva)
サナギ (Pupa)
はたらきアリ（小・大） (Worker ant (Small / Large))
女王アリ (Queen ant)
羽アリ（オス） (Winged ant (Male))
羽アリ（メス） (Winged ant (Female))
死骸 (Corpse)



About Food (Insects) / Natural Enemies

Food (Insects) - Worker ants may capture food (insects). The food (insects) that appear change depending on the season.

A little introduction!

- Small moth (Jan-Dec)
- Pill bug (Mar-Nov)
- Stink bug (Year-round)
- Winter geometer moth (Nov-Mar)
- Bush cricket nymph (Apr-Jun)
- Golden-ringed dragonfly (May-Nov)
- Grasshopper (Nov-Mar)
- Large brown cicada (Jun-Sep)

★There are over 20 types of food (insects) throughout the year.

Natural Enemies - Natural enemies may appear and attack the ants. The natural enemies that appear change depending on the season.

A little introduction!

- Purseweb spider
- Enemy ant
- ???
- ???

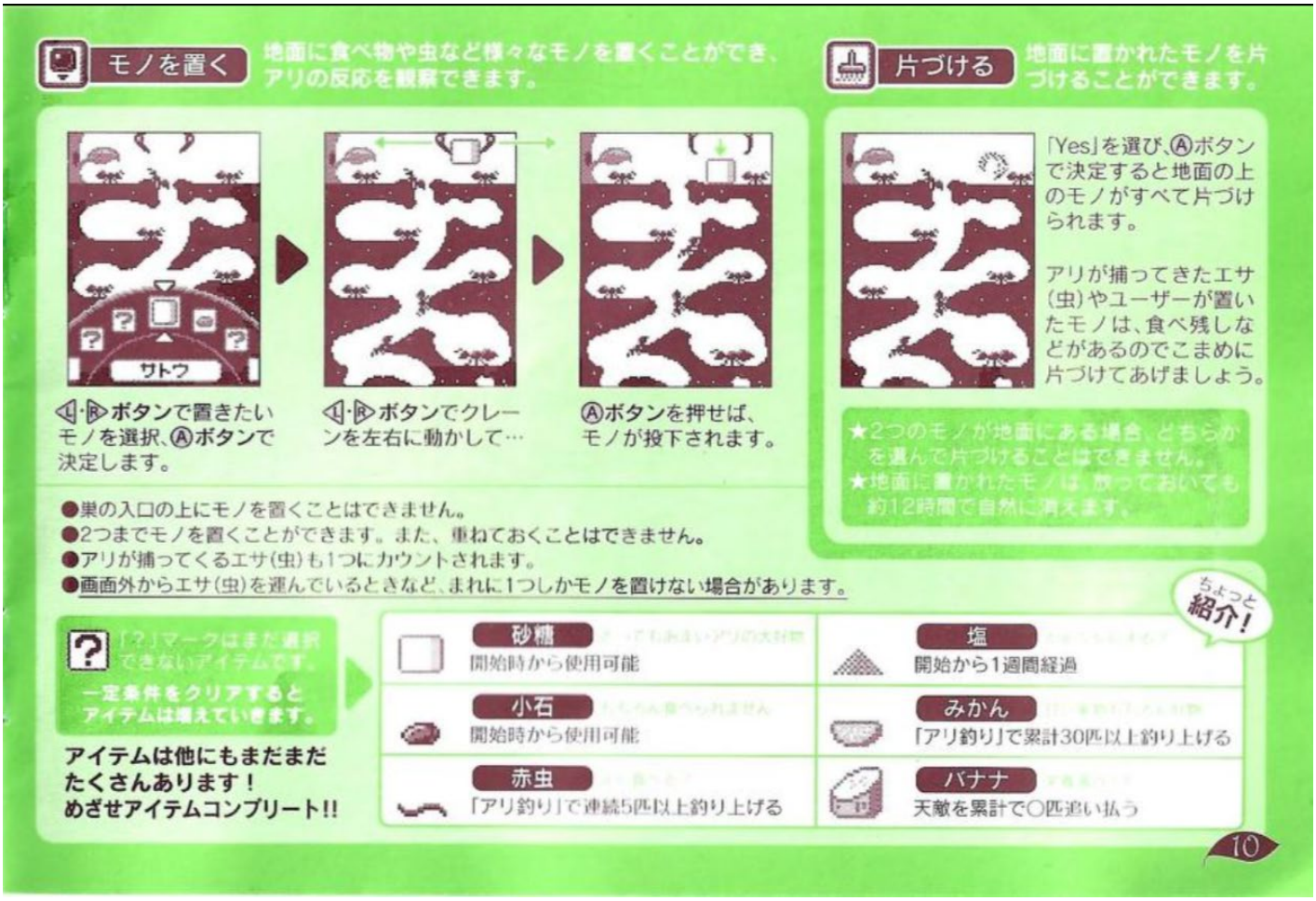
Various natural enemies appear, such as earwigs and frogs that hide in the garbage like ninjas. In addition, giant earthworms that destroy the nest hole may also appear.

★You can drive away natural enemies by lightly and continuously tapping the top of the main unit. -> See P.12 "About the vibration sensor".

Mode Menu Screen - The user can perform various experiments and settings.

Pressing the Ⓐ button on the main screen displays the mode menu. Select with the ◀/▶ buttons, and confirm with the Ⓐ button. (Return with the Ⓑ button). Until 2 or more worker ants are born, you cannot use "Place objects", "Insert a stick", "Ant hunting", or "Clear away". Please warmly watch over the queen ant's efforts until the worker ants are born.

- Objects -> P.10 You can place various objects such as food on the ground.
- Clear Away -> P.10 You can clear away objects placed on the ground.
- Insert a Stick -> P.11 You can insert a stick into the nest.
- Ant Hunting -> P.11 A mini-game where you catch ants with a string.
- Alarm -> P.12 You can set the alarm ON/OFF and the time.
- Data Screen -> P.12 You can check the condition of the nest, etc.
- Options -> P.13 Configure settings for sound, backlight, etc.



Place Objects - You can place various objects such as food and insects on the ground and observe the ants' reactions.

- Select the object you want to place with the ◀/▶ buttons, and confirm with the Ⓐ button.
- Move the crane left and right with the ◀/▶ buttons...
- Press the Ⓐ button, and the object will be dropped.

● You cannot place objects on top of the nest entrance.
● You can place up to 2 objects. Also, you cannot stack them.
● The food (insects) that ants capture is also counted as 1 object.
● Rarely, you may only be able to place 1 object, such as when ants are carrying food (insects) from outside the screen.

Clear Away

You can clear away objects placed on the ground.

Select "Yes" and confirm with the Ⓐ button to clear away all objects on the ground. The food (insects) captured by ants and objects placed by the user may have leftovers, so please clear them away frequently.

★ If there are 2 objects on the ground, you cannot select which one to clear away.

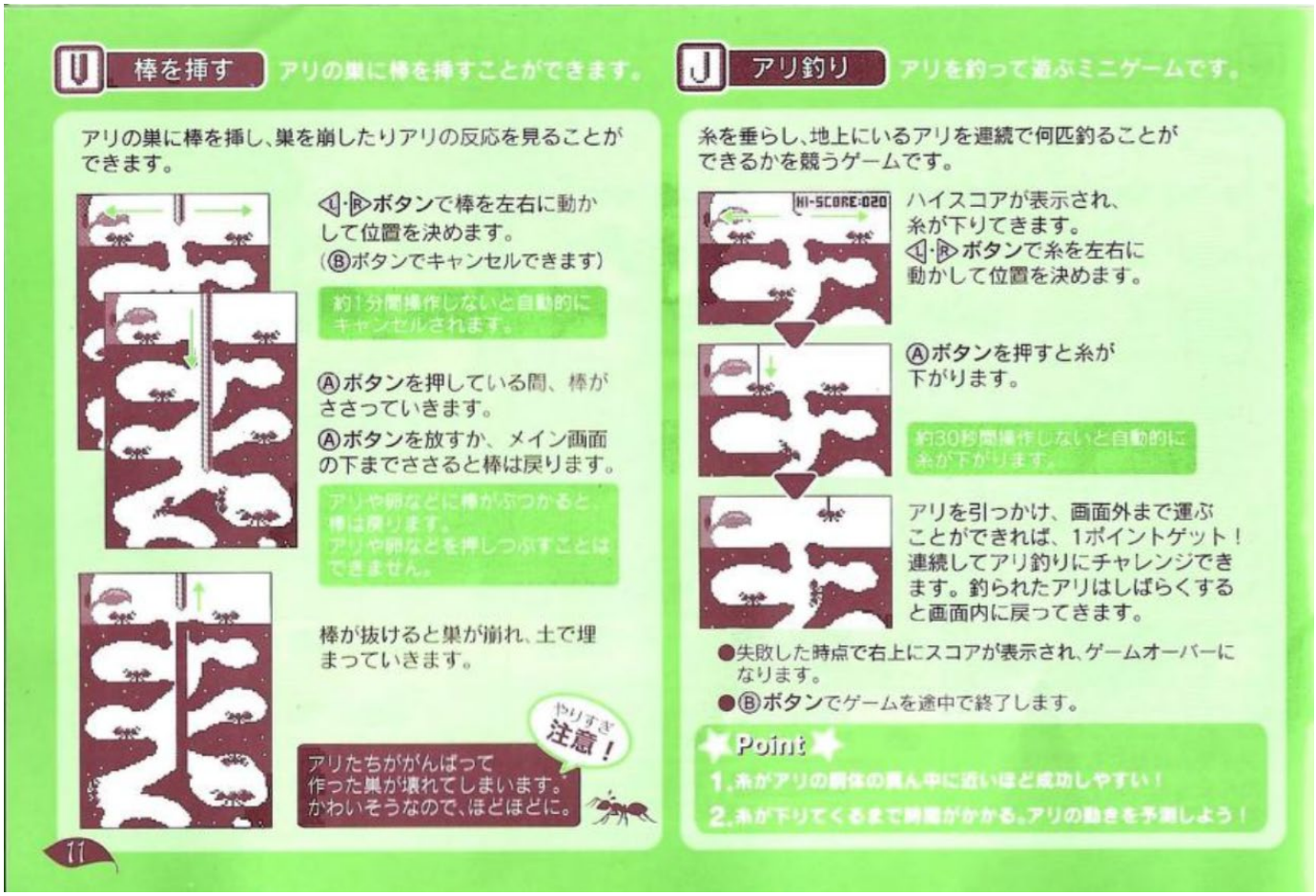
★ Objects placed on the ground will naturally disappear in about 12 hours even if left alone.

"?" marks are items that cannot be selected yet. Items will increase as you clear certain conditions.

A little introduction!

- Sugar / Available from the start
- Pebble / Available from the start
- Bloodworm (Will they eat it?) / Catch 5 or more consecutively in "Ant Hunting"
- Salt / 1 week has passed since starting
- Mandarin orange (Full of moisture) / Catch a total of 30 or more in "Ant Hunting"
- Banana (This is also sweet and delicious) / Drive away a total of ○ natural enemies

There are many more items! Aim for item completion!!



Insert a Stick - You can insert a stick into the ant's nest.
You can insert a stick into the ant's nest to destroy the nest or observe the ants' reactions.

- Use the ◀/▶ buttons to move the stick left and right to determine the position. (You can cancel with the Ⓑ button) It will be automatically canceled if there is no operation for about 1 minute.
- While holding down the Ⓐ button, the stick will be inserted. The stick will return when you release the Ⓐ button or when it is inserted to the bottom of the main screen.
- If the stick hits an ant or an egg, the stick will return.
- You cannot crush ants or eggs.
- When the stick is pulled out, the nest collapses and gets buried with dirt.

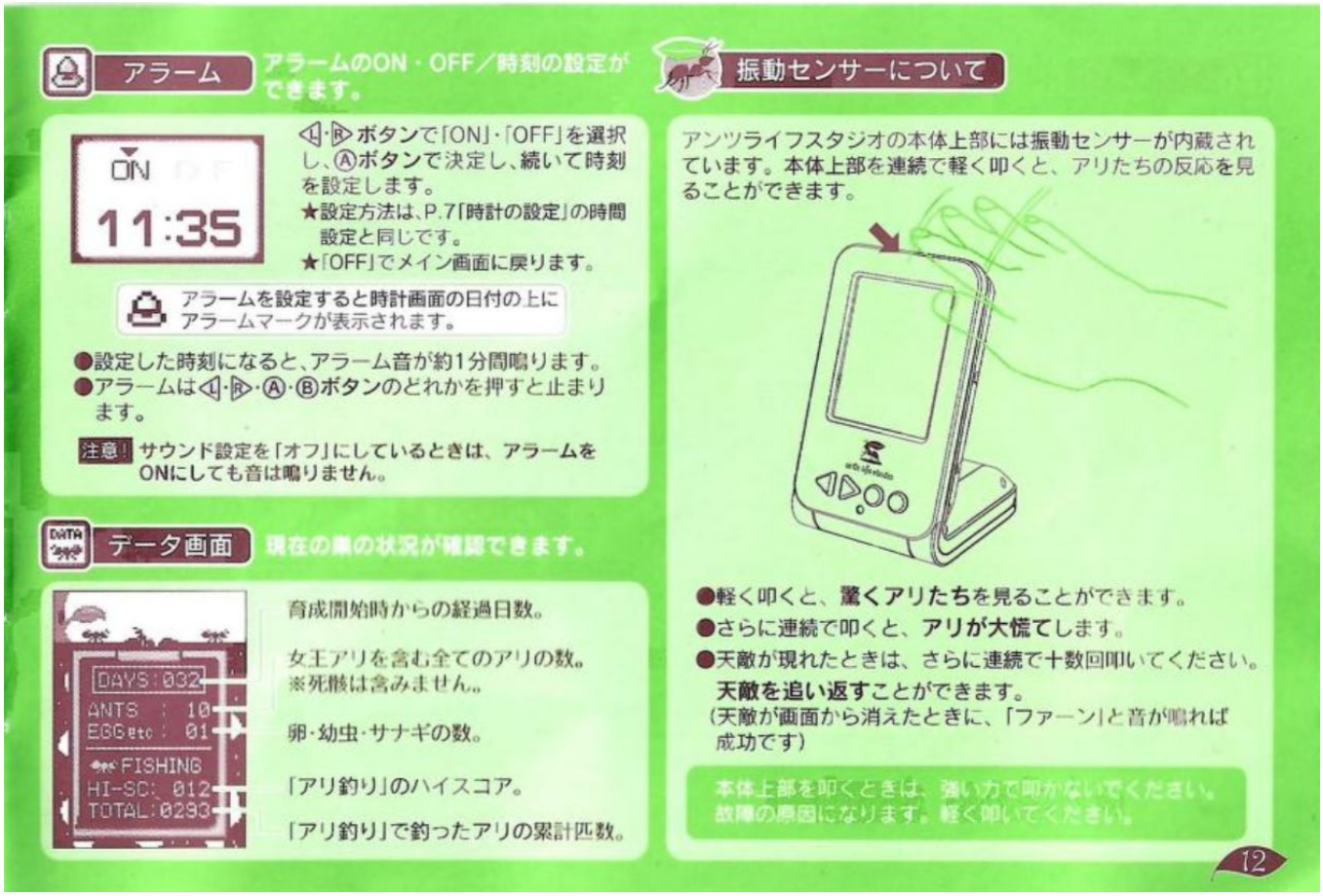
Caution: Do not overdo it! The nest that the ants worked hard to build will be destroyed. It's pitiful, so please do it in moderation.

Ant Hunting - A mini-game where you play by fishing for ants.
A game where you dangle a string and compete to see how many ants on the ground you can catch consecutively.

- The high score is displayed, and the string comes down.
- Use the ◀/▶ buttons to move the string left and right to determine the position.
- Press the Ⓐ button to lower the string. The string will automatically lower if there is no operation for about 30 seconds.
- If you hook an ant and carry it off-screen, you get 1 point!
- You can continuously ch12qwallenge ant hunting. Caught ants will return to the screen after a while.

● When you fail, the score is displayed in the upper right corner, and the game is over.
● Use the Ⓑ button to end the game midway.

Hints
1. The closer the string is to the middle of the ant's body, the easier it is to succeed!
2. It takes time for the string to come down. Predict the ant's movements!



Alarm - You can set the alarm ON/OFF and the time.

Select "ON" or "OFF" with the ◀/▶ buttons, confirm with the Ⓐ button, and then set the time.

★ The setting method is the same as the time setting in P.7 "Clock Setting".

★ Select "OFF" to return to the main screen.

- When the alarm is set, an alarm mark is displayed above the date on the clock screen.

● When the set time is reached, the alarm sound will ring for about 1 minute.

● The alarm will stop when you press any of the ◀, ▶, Ⓐ, or Ⓑ buttons.

Caution: When the sound setting is "Off", the alarm will not sound even if it is turned ON.

Data Screen - You can check the current condition of the nest.

DAYS: The number of days elapsed since the start of breeding.

ANTS: The total number of ants including the queen ant. *Corpses are not included.

EGG, etc.: The number of eggs, larvae, and pupae.

FISHING: High score of "Ant Hunting".

TOTAL: The cumulative number of ants caught in "Ant Hunting".

About the Vibration Sensor

A vibration sensor is built into the top of the Ant's Life Studio main unit. By lightly and continuously tapping the top of the main unit, you can observe the ants' reactions.

● Tap lightly to see the ants get surprised.

● Tap continuously to make the ants panic.

● When a natural enemy appears, tap continuously a dozen times or more. You can drive away the natural enemy. (It is successful if a "Farn" sound plays when the natural enemy disappears from the screen.)

When tapping the top of the main unit, do not tap with strong force. It may cause a malfunction. Please tap lightly.

Options - You can perform various settings such as sound and backlight.

- Sound - Set the sound ON/OFF. Caution! When the sound setting is "Off", the alarm will not sound even if it is turned ON.
- Light - Set the backlight ON/OFF, etc.
    - Long Light - The backlight is always on. It repeatedly becomes brighter and darker.
    - Short Light - The backlight turns on for about 10 seconds only when a button is pressed.
- Light Off - The backlight does not turn on.

When using dry cell batteries, Long Light cannot be selected in consideration of battery consumption. In the default setting, the light is on.

- When using the dedicated AC adapter, Long Light is set.
- When using batteries, Short Light is set.

A little convenient! Backlight setting shortcut. You can switch the backlight on and off by pressing and holding the Ⓑ button.

- When using the dedicated AC adapter: Alternates between "Long Light" and "Light Off".
- When using dry cell batteries: Alternates between "Short Light" and "Light Off".

Clock - Reset the date, day of the week, and time.
When setting, it switches to the clock screen. For the setting method, please refer to P.7 "Clock Setting".

Memory Clear
When you want to start breeding over from the beginning, you can erase the saved data.
※To prevent accidental operation, perform the same operation twice.

- NO ➞ Return to the main screen
- YES ➞ Memory clear
- Caution! Data once erased cannot be restored. Please be careful.

★ Pressing the reset button does not erase the data. Data can only be erased from "Memory Clear".

Others

■ If the queen ant dies...

If the queen ant dies, no more eggs will be laid. If the remaining worker ants die, the nest will not develop any further.

★If you want to start over from the beginning, please perform the operation in P.13 "Options" -> "Memory Clear".

■About data during breeding (Memory Save)

Ant's Life Studio saves the breeding state to the memory at regular intervals. During saving, "NOW WRITING" is displayed. Do not press the reset button or remove the batteries while this is displayed. The data may be corrupted. When the batteries are replaced or the reset button is pressed, the data from the last save remaining in the memory will be loaded.

※Objects, food, garbage, etc. on the ground or in the nest hole are not saved.

Conclusion

● If you take care of them diligently, such as giving food, clearing garbage, and driving away natural enemies, the queen ant will live longer.

● If there are many worker ants, the time it takes to expand the nest hole will be faster. They dig about one screen's worth in about a month, so please patiently enjoy the daily changes.

●Various changes will appear depending on the season. Please enjoy the changing of the seasons.

● The worker ants will freely expand the nest hole. There are more than 100 patterns for the nest hole combining the top and bottom two screens.

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http://www.asovision.com/ant/

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